

Air Quality Monitoring Program - Great Smoky Mountains National Park: 1980-2007

| Site Name-Elevation./Location/Cooperators/Start Year | Observation(s) | Temporal Resolution |
|--|--|---|
| LOOK ROCK – 2700' (Blount Co, TN, Ridge) NPS (84-07) | O ₃ , meteorology ¹ | Hourly |
| NPS (84-07) | PM _{2.5} /PM ₁₀ ² | Daily speciated PM (1 in 3 days) |
| NPS, EPA, TN (02-07) | PM _{2.5} (mass) ³ | Hourly (TEOM) |
| NPS (93-07) | Nephelometer (B _{Scat}) ² | Hourly, 15-minute |
| NPS (98-07) | High resolution camera ¹ | 15-minute |
| NPS (98-07) | CASTNet dry deposition ⁴ | Integrated Weekly |
| TVA (99-02) and VISTAS Focus Site (03-07) | Continuous PM _{2.5} (SO ₄ , NO ₃ , TC, BC) ⁵ | Hourly |
| TVA (99-07) | Trace Gasses ⁵ (O ₃ , SO ₂ , CO, NO-NO _y , NO ₂) | Hourly, 5-minute (seasonal) |
| CADES COVE –1850' (Blount Co, TN, Valley) NPS, NWS (94-07) | O ₃ ¹ , meteorology ^{1,6} | Hourly ¹ , min/max temp, precip. ⁶ |
| NPS, EPA (96-04) | UV-B, stratospheric O ₃ ⁷ | Hourly |
| TWIN CREEKS –2000' (Sevier Co, TN, Valley) NPS (87-93) | Ozone ¹ | Hourly |
| COVE MTN – 4150' (Sevier Co, TN, Ridge) NPS, NOAA (86-07) | O ₃ , meteorology ^{1,8,14} | Hourly |
| NPS, TVA, VISTAS (95-05) | Trace Gasses ^{1,5,8} (O ₃ , SO ₂ , CO, NO-NO _y) | Hourly, 5-minute |
| NPS, TVA (95-98) | VOC ⁸ | 1-Hour samples - summers |
| NPS, TVA (00-01) | PM _{2.5} mass, B _{Scat} ⁸ | Daily mass; Hourly B _{Scat} -3 rd Qtr |
| CLINGMANS DOME –6660' (Sevier Co, TN, Ridge) NPS (93-07) | O ₃ , meteorology ¹ | Hourly (May-Oct) |
| NPS, EPA, TVA (98-04 & 07) | CASTNet dry deposition ⁴ | Integrated Weekly (May-Sep) |
| NPS, EPA, TVA (94-07) | Cloud deposition ⁹ | Daily (May-Sep) |
| TVA, NPS (02-07) | Mercury deposition ¹⁰ | Integrated Weekly (May-Sep) |
| ELKMONT – 1850' (Sevier Co, TN, Valley) NPS (80-06) | Wet deposition ¹² | Integrated Weekly |
| NPS (02-06) | Mercury deposition ¹⁰ | Integrated Weekly |
| HEADQUARTERS – 1500' (Sevier Co, TN, Valley) NWS, NPS | Climatology ⁶ | Min/max temp, daily precip |
| MT. LECONTE – 6300' (Sevier Co, TN, Ridge) NWS, NPS | Climatology ⁶ | Min/max temp, daily precip |
| OCONALUFTEE – 2000' (Swain CO, NC, Valley) NWS, NPS | Climatology ⁶ | Min/max temp, daily precip |
| PURCHASE KNOB –4900' (Haywood Co, NC, Ridge) NC, NOAA (95-07) | O ₃ ¹³ , met ¹⁴ | Hourly O ₃ (Apr-Oct) |
| NPS (03-07) | High res. camera, sound ¹ | 15-minute |
| BARNETT KNOB – 4700' (Jackson Co, NC, Ridge) NC (98-07) | O ₃ , meteorology ^{13,15} | Hourly (Apr-Oct) |
| BRYSON CITY – 1900' (Swain Co, NC, Valley) NC (95-07) | O ₃ ¹³ , SO ₂ (1 in 3 yrs) | Hourly (Apr-Oct) |
| NC (02-07) | TEOM ¹³ | Hourly |
| NC (98-07) | PM _{2.5} /PM ₁₀ ¹³ | Daily speciated PM (1 in 3 days) |
| NOLAND DIVIDE –5700' (Swain Co NC, Ridge) NPS/UT (91-07) | Wet deposition, lysimetry ¹ | Integrated bi-weekly |
| NPS, UT (00-03) | Meteorology ¹ | Hourly |
| NEWFOUND GAP – 5020' (Swain Co, NC, Ridge) UT (02-03) | O ₃ , meteorology ¹¹ | Hourly (portable), partial day |
| UT, W. Carolina U., Emory U. (02-03) | PM _{2.5} ¹¹ (mass only) | Hourly (portable), partial day |
| NWS, NPS | Climatology ⁶ | Min/max temp, daily precip |

1 National Park Service Gaseous Pollutant and Meteorological Monitoring Network and GRSM monitoring program

Meteorological measurements (since 1991) include wind speed/direction, relative humidity, temperature, solar radiation, and precipitation

2 Interagency Monitoring of Protected Visual Environments (IMPROVE 1988-Present) & Stack Filter Unit (SFU 1984-1988).

Speciated fine particle measurements include filter-based SO₄, NO₃, NH₄, organics, elemental carbon, soil, ions, trace metals, PM₁₀

3 Tapered-Element Oscillating Microbalance (TEOM) with NPS, EPA, TN

4 Clean Air Status & Trends Network (CASTNet) National Dry Deposition Network (NDDN)

Measurements include filter-based fine mass SO₂, SO₄, NO₃, NH₄, and HNO₃

5 TVA's PM Supersite (DOE/ONRL, EPRI, and NPS) and VISTAS (TVA/NPS) Focus Site

6 National Oceanic and Atmospheric Administration (NOAA), National Weather Service cooperative climate network

7 NPS/EPA/NOAA Research and Intensive Monitoring of Ecosystems Network (PRIMENet), National Ultraviolet Monitoring Center

8 NPS and TVA Enhanced Gaseous Pollutant Monitoring

9 NPS, EPA, TVA Clean Air Status and Trends Network (CASTNet) Mountain Acid Deposition Program (MADPro)

Measurements include SO₄, NO₃, NH₄, H⁺, Ca, Mg, K, Cl, cloud frequency, liquid water content, and meteorology

10 Mercury Deposition Network (MDN)

11 University of Tennessee, Western Carolina University, and Emory University Adult Day-Hiker Health Study

12 National Atmospheric Deposition Program (NADP)

Measurements include SO₄, NO₃, NH₄, H⁺, inorganic N, pH, conductivity, major cations (Ca, Mg, K), precipitation volume

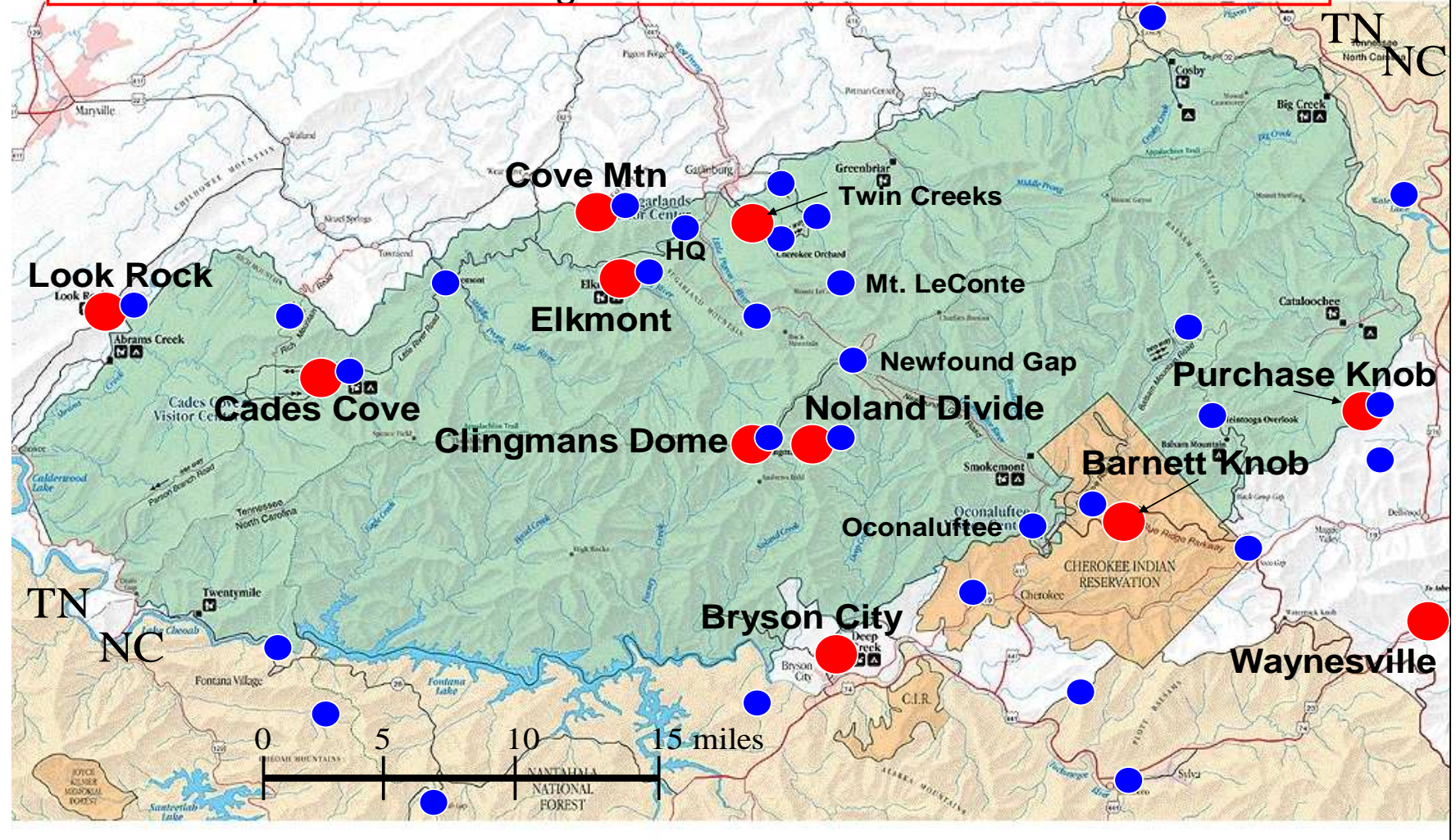
13 State of North Carolina, Department of Environment and Natural Resources, Division of Air Quality

14 National Oceanic and Atmospheric Administration (NOAA) Regional Atmospheric and Analytical Network (RAMAN)

15 Cherokee Tribal Utilities Air Quality Monitoring Program

Air Quality Monitoring Sites

Precipitation monitoring stations



Web Access to Air Quality Data Sets for Great Smoky Mountains National Park

Acid Deposition (wet & dry deposition data, precipitation and maps):

<http://nadp.sws.uiuc.edu/>

<http://www.epa.gov/castnet/>

Mercury Deposition (data and maps):

<http://nadp.sws.uiuc.edu/>

Visibility (data and maps):

<http://vista.cira.colostate.edu/improve/>

<http://vista.cira.colostate.edu/views/>

Ozone & Meteorology:

http://12.45.109.6/pls/portal/data_request.mainfile

Meteorology:

NOAA Tower Data: <http://raman.atdd.noaa.gov/>

NWS Data: <http://www.ncdc.noaa.gov/oa/ncdc.html>

Ozone Mapping and Forecasting of Eastern U.S, TN/NC, Great Smoky Mountain regions:

<http://airnow.gov/>

Real-time ozone, visibility, PM2.5, web-cam, and meteorology at GRSM:

<http://www2.nature.nps.gov/air/webcams/parks/grsmcam/grsmcam.cfm>

<http://www2.nature.nps.gov/air/webcams/parks/grsmpkcam/grsmpkcam.cfm>

UV Monitoring:

<http://www.epa.gov/uvnet/>